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Control and Monitoring Algorithms in Process Automation Applications
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Edited by R. Haber

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This volume contains research results of control engineering groups at the Cologne University of Applied Sciences and from some cooperating groups. The papers deal with advanced control methods and their applications.

The following control methods are presented:

- predictive control of single-input, single output and multivariable processes
- constrained predictive control
- state space predictive control
- PFC (Predictive Functional Control)
- new PID (Proportional, Integral, Derivative) controller tuning method based on inflectional tangent
- PID controller tuning based on PFC
- predictive PID control

The following control applications are described:

- coupled industrial furnace
- wastewater treatment
- heating system
- Claus unit

The following monitoring methods and applications are treated:

- asset management of pumps
- control performance monitoring of valves
- fault detection of gas analyzers using control charts